

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-14. (Canceled)

1 ~~15~~ (Currently Amended): A thermostable mutant polymerase comprising a Y-GG/A amino acid motif between an N-terminal 3'-5' exonuclease domain and a C-terminal polymerase domain wherein the tyrosine of the Y-GG/A amino acid motif is substituted with another amino acid, and wherein ~~the difference between the mutant polymerase and SEQ ID NO:34 consists of~~ ^{is} ~~the single amino acid substitution of the tyrosine of the Y-GG/A amino acid motif~~ ^{but has} ~~the mutant~~ polymerase has at least 80 % amino acid homology to SEQ ID NO:34.

16-19. (Canceled).

2 ~~20~~ (Previously Presented): The mutant polymerase of Claim ~~15~~ ¹ wherein the tyrosine of the Y-GG/A amino acid motif is substituted with an amino acid with an aromatic side chain.

3 ~~21~~ (Previously Presented): The mutant polymerase of Claim ~~20~~ ² wherein the tyrosine of the Y-GG/A amino acid motif is substituted with a phenylalanine, a tryptophan or a histidine.

5 ~~22~~ (Previously Presented) The mutant polymerase of Claim ~~15~~ ¹ wherein the tyrosine of the Y-GG/A amino acid motif is substituted with an amino acid with a hydrophilic side chain.

6 ~~23~~ (Previously Presented) The mutant polymerase of Claim ~~22~~ ¹ wherein the tyrosine of the Y-GG/A amino acid motif is substituted with an asparagine.

8 ~~24~~ (Previously Presented): A DNA encoding the mutant polymerase of Claim ~~15~~ ¹.

9 ~~25~~ (Previously Presented): A vector comprising the DNA of Claim ~~24~~ ⁸.

10 ~~26~~ (Previously Presented) An isolated host cell comprising the DNA of Claim ~~24~~ ⁸ or the vector of Claim 25.

11 ~~27~~ (Previously Presented) A process for obtaining a mutant polymerase comprising

10

purifying the mutant polymerase from the isolated host cell of Claim ~~26~~.

~~12~~ ~~28~~. (Previously Presented): A process for synthesizing nucleic acids, comprising contacting the mutant polymerase of Claim ~~15~~ with nucleotides, a primer and a polynucleotide template under conditions suitable for elongation of the primer.

~~13~~ ~~29~~. (Previously Presented): A process for polynucleotide amplification comprising contacting the mutant polymerase of Claim ~~15~~ with nucleotides, primers and a polynucleotide template under conditions suitable for amplification of the polynucleotide.

~~4~~ ~~30~~. (Previously Presented) The mutant polymerase of Claim ~~3~~ ~~21~~ wherein the tyrosine of the Y-GG/A amino acid motif is substituted with a tryptophan or a histidine.

~~7~~ ~~31~~. (Previously Presented) The mutant polymerase of Claim ~~5~~ ~~22~~ wherein the tyrosine of the Y-GG/A amino acid motif is substituted with a serine.

~~14~~ ~~32~~. (Previously Presented) A polymerase chain reaction process comprising contacting the mutant polymerase of Claim ~~15~~ with nucleotides, a primer and a polynucleotide template under conditions suitable for amplification of the polynucleotide template.

33-34. (Canceled)